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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Benjamin Esposito

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EXAMINER

BAKER, STEPHEN M

ART UNIT

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2112

MAIL DATE

DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/821,377	Applicant(s) ESPOSITO ET AL.	
	Examiner Stephen M. Baker	Art Unit 2112	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 January 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-32 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities:

Applicant's use of the term "packet" implies that each block of bits so called is independently routable, however all of applicant's "packets" are apparently not independently routable.

Correction is required. See MPEP § 608.01(b).

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 1-32 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claims 1, 4-6, 11, 12, 14, 17, 20-22, 27 and 30, "packets" in "identification packets" is apparently misdescriptive and apparently should be "sub-packets."

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1- 32 are rejected under 35 U.S.C. 102(b) as being anticipated by the published article “A Prototype of an AAL for High Bit Rate Real-Time Data Transmission System over ATM Networks Using a RSE CODEC” by Eilers et al (hereafter “Eilers”).

Eiler’s discloses AAL arrangements (Fig. 3) for adapting “frames” to an ATM network, including the provision of FEC cells generated using an interleaved (Fig. 4) Reed-Solomon code. Eiler’s AAL adapts “frames” by breaking the frame data up, after interleaved RS encodings, into 45-byte data cell payloads (“data sub-packets”) and FEC cell payloads, further adding 3 payload bytes, including SNs, to all the cell payloads, and further adding cell headers, thus inserting “sequential identification packets.” Eiler’s data cell payloads are “data sub-packets.” Accordingly, Eiler’s AAL provides an “encoding circuit.” The ATM network coupled with Eiler’s transmitter-side AAL requires a “transmitter circuit” and a “receiver circuit” and a receiver-side AAL on the network provides a “decoding circuit” for decoding the interleaved data cells and FEC cells, in part by identifying positions of the interleaved data cells and FEC cells from sequence numbers, storing the 45-byte data cell payloads and recovering non-received 45-byte data cell payloads using the FEC coding.

Regarding claims 4, 5, 20 and 21, Eiler presumably counts data while receiving the cells, in order to distinguish cell headers and payloads, for example.

Regarding claims 12, 15 and 31, Eiler's packet data is presumably transmitted serially, thus requiring a "serializer" at the transmitting side and a "deserializer" at the receiving side.

Regarding claims 9, 13, 16, 25, 29 and 32, Eiler's receiver AAL node presumably derives a clock signal from the transmitted data, as an ATM link does not provide a separate clock signal line.

Claim Rejections - 35 USC § 103

6. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

7. Claims 4, 5, 20 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eiler in view of U.S. Patent No. 5,642,347 to Buckland (hereafter "Buckland").

Eiler presumably counts data while receiving the cells, in order to distinguish cell headers and payloads, for example, however Eiler does not clearly show as much. Buckland discloses an ATM AAL receiver which counts data while receiving the packets, in order to distinguish headers and payloads. It would have been obvious to a person having ordinary skill in the art at the time the invention was made to incorporate Buckland's counter logic into Eiler's AAL receiver. Such an application of Buckland's counter logic would have been obvious because it is required for receiving ATM cells.

8. Claims 12, 15 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eiler in view of U.S. Patent No. 5,784,370 to Rich (hereafter "Rich").

Eiler's packet data is presumably transmitted serially, thus requiring a "serializer" at the transmitting side and a "deserializer" at the receiving side, however Eiler does not clearly show as much. Rich discloses an ATM transmitter and receiver which use a serializer and a deserializer, in order to use a serial transmission channel. It would have been obvious to a person having ordinary skill in the art at the time the invention was made to incorporate Rich's ATM serializer and a deserializer into a system that uses Eiler's AAL encoding and decoding. Such an application of Rich's serializer and a deserializer would have been obvious because it allows the ATM network to use a serial transmission channel.

9. Claims 9, 13, 16, 25, 29 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eiler in view of U.S. Patent No. 5,414,707 to Johnston et al (hereafter "Johnston").

Eiler's receiver AAL node presumably derives a clock signal from the transmitted data, as an ATM link does not provide a separate clock signal line, however Eiler does not clearly show as much. Johnston discloses an ATM AAL receiver which derives a clock signal from the transmitted data, as idle cells are required to maintain synchronization (column 11, lines 25+). It would have been obvious to a person having ordinary skill in the art at the time the invention was made to incorporate Johnston's clock signal derivation into Eiler's AAL receiver. Such an application of Buckland's counter logic would have been obvious because it is required for receiving ATM cells.

10. Claims 1-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. patent No. 5,844,918 to Kato (hereafter "Kato").

Kato discloses hybrid ARQ/FEC arrangements for reliably transmitting data in packets, wherein FEC processing is not carried out on a per-packet basis, but on a multi-packet basis instead. In Kato's arrangements a block ("frame") of basic data (BD) is first encoded (Fig. 5a) with a BCH-based error correction code which appends BCH code parity bits (BCHD) to the block, then divided into fixed-length segments (Fig. 5b), then each segment ("sub-packet") is encoded (Fig. 5c) with a CRC which appends CRC parity bits (CRC) to each segment, and finally a packet header ("identification packet") is added (Fig. 5d) to each segment in order to form the packets for transmission. Kato thus apparently discloses "circuitry for maintaining data integrity across data links" comprising an "encoding circuit for dividing a data frame into a plurality of sub-packets, inserting a plurality of sequential identification packets within said data frame in between said plurality of sub-packets, and for transmitting said data frame with said inserted plurality of identification packets," however Kato does not specifically describe the headers as providing "identification" of the segment it is associated with. At the receiver, an arrangement for carrying out a process (Fig. 7a-7d) complementary to the transmitting process is required in order to return ("reconstruct") the data to its original form as a block of basic data (BD), providing a "decoding circuit for receiving said transmitted data frame, for identifying each of said plurality of sequential identification packets, and for storing each of said plurality of sub-packets following each of said plurality of sequential identification packets, wherein each of said plurality of sub-packets is stored in the sequence of said preceding sequential identification packet".

Official Notice is taken that it was conventional for packet ARQ to be performed using packet headers that provide “identification” of the position of the packet in a sequence of packets at the time the invention was made. It would have been obvious to a person having ordinary skill in the art at the time the invention was made to implement Kato’s headers with sequential identification information. Such an implementation would have been obvious because it was already conventional for packet ARQ to be performed using packet headers that provide “identification” of the position of the packet in a sequence of packets. Kato’s ARQ flowchart (Fig.9) indicates a packet in a series of packets is requested for retransmission after the series of packets is received, which means delivery can be out-of-order and as such presumably requires a sequence number for each packet.

Regarding claims 2 and 18, Kato’s BCH code is a “forward error correction code”.

Regarding claims 3, 10, 19 and 26, each of Kato’s “sub-packets” is the same size.

Regarding claims 6, 14, 17, 22, 27 and 30, the packet headers presumably carry sequence number information for identifying and (re-)ordering the packets, for Kat’s packet-level (“sub-packet”-level) automatic retransmission (ARQ) protocol requires as much.

Regarding claims 4, 5, 20 and 21, Kato does not mention counting time or counting the amount of data while receiving the packets. Kato’s fixed-length packets may be packed cells. Official Notice is given that the usefulness of counting bit clocks while receiving packed data cells was well known at the time the invention was made. It

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would have been obvious to a person having ordinary skill in the art at the time the invention was made to implement Kato's receiving circuitry with a means for counting data bit clocks on received bits. Such an implementation would have been obvious because the usefulness of counting bit clocks while receiving packed data cells was already well known.

Regarding claims 7 and 23, Kato does not mention a Reed-Solomon code.

Official Notice is given that Reed-Solomon codes were well-known, widely-used types of BCH code at the time the invention was made. It would have been obvious to a person having ordinary skill in the art at the time the invention was made to implement Kato's BCH code as a Reed-Solomon code. Such an implementation would have been obvious because Reed-Solomon codes were already well-known and widely-used types of BCH code.

Regarding claims 8 and 24, Kato does not mention interleaving. Official Notice is given that advantages to interleaving FEC-encoded data among data packets were well-known at the time the invention was made. It would have been obvious to a person having ordinary skill in the art at the time the invention was made to incorporate an interleaving means into Kato's encoding arrangements. Such incorporation would have been obvious because advantages to interleaving FEC-encoded data among data packets were already well-known.

Regarding claims 9, 13, 16, 25, 29 and 32, Kato does not mention encoding a clock signal within the data to be transmitted or deriving a clock signal from the transmitted data. Official Notice is given that the advantages of encoding a clock signal

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(modulation coding) and deriving a clock signal from the data so encoded (demodulation of a modulation code) when transmitting digital data were well-known at the time the invention was made. It would have been obvious to a person having ordinary skill in the art at the time the invention was made to implement Kato's arrangements with means for encoding a clock signal within the data to be transmitted and deriving a clock signal from the transmitted data. Such an implementation would have been obvious because advantages of encoding a clock signal (modulation coding) and deriving a clock signal from the data so encoded (demodulation of a modulation code) when transmitting digital data were already well-known.

Regarding claims 12, 15 and 31, although Kato's packet data is transmitted serially, Kato does not mention the need for a "serializer" and "deserializer". Official Notice is given that the advantages of manipulating data as bytes or words before and after serial transmission, thus requiring a "serializer" and a "de-serializer", were well-known at the time the invention was made. It would have been obvious to a person having ordinary skill in the art at the time the invention was made to implement Kato's encoding and transmission arrangements with a "serializer" and "de-serializer". Such an implementation would have been obvious because advantages of manipulating data as bytes or words before and after serial transmission were already well-known.

Response to Arguments

11. Applicant's arguments with respect to claims 1-32 have been considered but are moot in view of the new grounds of rejection.

Regarding applicant's use of the term "packet," the definition provided by applicant's argument assumed a communications *network* and thus assumes a means of directing the packets to the correct network nodes.

Conclusion

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen M. Baker whose telephone number is (571) 272-3814. The examiner can normally be reached on Monday-Friday (11:00 AM - 7:30 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jacques H. Louis-Jacques can be reached on (571) 272-6962. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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smb

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